

WHAT IS CLAIMED IS:

1. A photomask for use in a plurality of photolithography steps performed to manufacture a semiconductor device having a plurality of layers, the photomask comprising:
 - a plurality of mask patterns, each used in an associated one of the photolithography steps and corresponding to an associated one of the layers, wherein the mask patterns are arranged so that the photomask is always used oriented in substantially the same direction.
2. The photomask according to claim 1, wherein the mask patterns are arranged on the photomask so that the photomasks are sequentially and successively used during the photolithography steps.
3. The photomask according to claim 1, wherein the mask patterns are each formed in one of a plurality of rectangular regions, the rectangular regions being arranged adjacent to one another in the photomask, at least one of a width and length of one of the rectangular regions being substantially the same as at least one of a width and length of another one of the rectangular regions.
4. The photomask according to claim 3, wherein the rectangular regions have the same area.
5. The photomask according to claim 3, wherein each of the rectangular regions is square.
6. The photomask according to claim 1, wherein the mask patterns include a mask pattern mainly configured by a

line pattern for patterning wirings of the semiconductor device and a mask pattern mainly configured by a hole pattern for patterning connection holes of the semiconductor device.

5

7. The photomask according to claim 3, further comprising a target pattern arranged in each rectangular region to form a target mark that is used to position a mask pattern used in a following one of the photolithography steps.

10

8. The photomask according to claim 7, wherein the target pattern is arranged in a predetermined area of its respective rectangular region.

15

9. A method for manufacturing a semiconductor device having a plurality of layers, the method comprising:

providing a photomask including a plurality of mask patterns, with each mask pattern corresponding to a different layer of the semiconductor device to be manufactured; and

20

performing photolithographic processing of each of the layers using the mask pattern of the photomask corresponding to that layer with the photomask arranged each time oriented in a direction that is substantially the same for each layer and exposing only the mask pattern for the layer for which photolithographic processing is currently being performed and covering the other mask patterns.

25

10. The method according to claim 9, wherein the mask patterns are rectangular regions arranged adjacent to one another, and the step of performing photolithographic processing includes rotating a blind to expose only one of

30

the mask patterns and cover the remaining mask patterns when proceeding from photolithographic processing of one layer to another layer.

5 11. The method according to claim 10, wherein each rectangular region includes a target pattern for patterning a target mark for aligning the photomask, and the step of performing photolithographic processing includes aligning the target mark patterned for one of the layers with the
10 mask pattern used in a next one of the layers when proceeding from photolithographic processing of one layer to the next layer.

12. The method according to claim 11, wherein the
15 photomask is moved linearly when proceeding from photolithographic processing of one layer to the next layer.

13. The method according to claim 12, wherein the photomask is not rotated when proceeding from
20 photolithographic processing of one layer to the next layer.

14. The method according to claim 11, wherein each of the target patterns is formed in a predetermined area of its respective rectangular region.

25 15. A photomask for use in performing photolithographic processing to manufacture a semiconductor device having a plurality of layers, the photomask comprising:
30 a plurality of rectangular regions arranged adjacent to one another;
 a plurality of mask patterns, each corresponding to an associated one of the layers; and

a target pattern arranged in each rectangular region for aligning the photomask, wherein each target pattern is arranged in a predetermined area of the rectangular region, the predetermined area being defined at substantially the same position in each of the rectangular regions.

16. A method for manufacturing a semiconductor device using a photomask including a plurality of mask patterns having at least a first mask pattern and a second mask pattern, the method comprising:

exposing the first pattern while covering the other patterns to transcribe the first mask pattern on a semiconductor wafer;

linearly moving the photomask and the semiconductor relative to each other to align the second mask pattern with the semiconductor wafer; and

exposing the second mask pattern while covering the other mask patterns to transcribe the second mask pattern on the semiconductor wafer.

20

17. The method according to claim 16, wherein the mask patterns each have a plurality of rectangular regions having substantially the same dimensions and arranged adjacent to one another, the method further comprising:

rotating a blind to expose one of the rectangular regions and cover the other rectangular regions.

18. The method according to claim 17, wherein said rotating a blind includes rotating the blind by 90 degrees to expose one of the rectangular regions and cover the other rectangular regions.